Chapter 3 RD/RA Project Planning

3.1 Introduction

Any successful project begins with thorough and sound project planning. This chapter and the remainder of the *RD/RA Handbook* focuses specifically on Federal-lead, Fund-financed sites. Tabbed dividers have been provided so that individual documents on state- and enforcement-lead sites may be added.

The Remedial Project Manager (RPM), acting on EPA's behalf, is responsible for the quality of the remedial design (RD) or remedial action (RA) project. To implement a successful RD/RA project, the RPM must devote substantial time and effort to the planning process. The RPM who does so will face fewer unanticipated management demands as the project progresses. Although RD/RA project planning may appear to start after remedy selection and the signing of the Record of Decision (ROD), it should commence before the ROD is signed whenever possible. The earlier the planning begins, the greater the RPM's ability to direct the RD/RA to its successful completion.

3.2 Developing the Project Management Plan

After the RPM is familiar with remedy details and pertinent site information and history, he or she can begin making key planning decisions. To facilitate the planning and eventual implementation of the RD/RA, the RPM should develop a project management plan that documents project management goals and operational procedures. The project management plan is the RPM's tool to devise and document a strategy for successfully completing the project on time and within budget. The project management plan is a "living" document that is updated when new information becomes available as the design proceeds or as site circumstances change.

The RPM is responsible for the quality of the project, establishing project requirements and communicating these requirements to the other project participants, including the designer and the constructor. To summarize the requirements of the project fully, the RPM should consider carefully all aspects of the RD/RA project. A project management plan enables the RPM to do this effectively.

Figure 3-1 outlines the major managerial decisions addressed in project management plan development.

Figure 3-1

Project Management Plan

1. Definition of project objectives
2. Organizational structure
   - Identifying the lead
   - Assembling a Technical Review Team (TRT)
3. Communications structure
   - Developing the communications strategy
4. Project constraints
   - Analyzing effect on schedule/scope/budget
5. RD/RA contracting strategy
   - Identifying opportunities to accelerate the schedule
     - Phasing
     - Fast-tracking
     - Use of preplaced and prequalified contracts
   - Selecting the design approach
     - Detailed design specifications and drawings
     - Performance-based specifications and drawings
   - Identifying the RA contract type
     - Fixed price
     - Cost-plus-reimbursement
     - Time and materials
     - Indefinite delivery orders
     - Service or construction contracts
   - Choosing an RA procurement strategy
     - Competitive procurement
     - Non-competitive procurement
6. Schedule development
7. Budget preparation
   - Independent government cost estimates (IGCEs)
8. Superfund state contract (SSC) timing
9. Property access issues
10. Community relations

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Plan content will depend on the complexity of the RD or RA; fewer requirements need to be addressed for simple projects. The RPM determines plan contents and the level of detail. Some questions cannot be addressed until the design is underway; thus, the project management plan must be periodically revisited and updated. An inexperienced RPM should seek technical assistance from experienced Regional staff or the U.S. Army Corps of Engineers (USACE) when developing the plan. Specific elements of the project management plan are discussed in the following sections and in Chapters 4 and 5.

3.3 Establishing the RD/RA Lead for Federal-Lead Projects

Before an RD/RA project commences, the lead is established. For Federal-lead sites, the RPM must select the appropriate means of performing the RD and the RA. RD responsibilities may be assigned to an EPA contractor or USACE, at the Region's discretion, regardless of cost. An Office of Solid Waste and Emergency Response (OSWER) Directive mandated a maximum RA ceiling of $15 million for issuing RA assignments to an EPA contractor. RAs estimated to exceed $15 million should be assigned to USACE for construction management.

If an EPA contractor will be selected for the RD or RA or for both, the RPM, with assistance from the Project Officer (PO), should evaluate the contractor's success on other projects. Although it may appear to be desirable to maintain continuity from the remedial investigation/feasibility study (RI/FS) through the RA by using the same contractor for the RD and the RA, the RPM must consider carefully all options in light of project requirements and available contract capacity. In some instances, an EPA contractor will be selected to design the remedy and USACE to manage the construction. In these situations, it is strongly recommended that USACE serve as a technical advisor during the RD and be permitted to participate fully in the review of drawings and specifications.

OSWER Directive 9242.3-03, December 10, 1991, mandated a maximum RA ceiling of $15 million for issuing RA assignments to an EPA contractor.

3.4 Assembling a Technical Review Team

The complexity of a typical RD or RA project requires in-depth knowledge of a variety of engineering and geological fields, including chemical, civil, mechanical, and electrical engineering, and hydrogeology. Since a single RPM rarely possesses such a broad knowledge base, the RPM should assemble and coordinate a project team of career professionals with knowledge in the applicable fields. Before initiating an RD, the RPM should review the nature of the project and select the appropriate technical assistance. The project team approach, which requires the creation of a Technical Review Team (TRT) comprised of representatives from many disciplines, is used by federal agencies engaged in design and construction management, including USACE, and results in higher technical quality and improved project efficiency.

The TRT may include Superfund technical support staff, other experienced RPMs, representatives from USACE, the state, the Office of Research and Development (ORD), other EPA programs such as the Offices of Air, Water, and Solid Waste, or Technical Assistance Grant (TAG) technical representative. The RPM should also involve the state or other agencies with the expertise to assist in regulatory interpretation for compliance with permit or substantive requirements.

USACE uses the project team approach when managing an RD or RA and taps its own in-house resources to create a TRT. When issuing work assignments (WAs) to Alternative Remedial Contracting Strategy (ARCS) contractors and Response Action Contract (RAC) contractors, the RPM must identify additional resources, both internal and external, that could be used as part of the TRT to ensure success. For example, the RPM should consider using USACE in a technical assistance capacity. Other agencies have excellent technical resources and may provide a wide variety of engineering and project management services unavailable within EPA. These services can be obtained by preparing a technical assistance interagency agreement (IAG) that will explain and authorize the services needed. An IAG is an agreement between governmental agencies that outlines the responsibilities of each agency in a cooperative project. An RPM will encounter three

types of IAGs with USACE on RD/RA projects: RD IAGs; RA IAGs; and technical assistance IAGs. The titles of the IAGs reflect their purposes; technical assistance IAGs typically are used to facilitate USACE provision of technical assistance on a project. See section 4.4.2 and **Appendix D** for additional information.

Once the TRT is formed, team members assist the RPM in scoping the work and reviewing the work plan and other crucial deliverables. Document review is a very common bottleneck in project management. Some EPA Regional offices have adopted an intra-agency approach involving the creation of peer review groups from EPA staff to assist RPMs. Peer review groups tend to be most useful on simple or small-scale projects or as a component of the TRT. **Figure 3-2** lists potential representative members of the TRT.

Large, diverse TRTs, with members from EPA and other organizations located in different areas, present

Figure 3-2

Potential Technical Review Team Members

EPA Regional Personnel	Experience Added to Project Team
Technical Suppport Team	• Specialized technical services
Groundwater Technical Support Unit	• Specialized technical services
Other experienced RPMs	• RD/RA management experience
ORD personnel	• Technology experts
Office of Water	• Media experts
Office of Solid Waste	• Media experts
Office of Air	• Media experts
RCRA representative	• Applicable or relevant and appropriate requirements (ARARs), regulatory specialists
Health and Safety Officer	• Health and safety specialists
Community Relations Coordinator	• Experience in communicating with the public
Environmental Services Division	• Quality assurance/sampling experts
Regional IGCE Coordinator	• Costing specialist
Contracting Officer/Project Officer	• Contract/WA administration
Staff attorney	• Legal expertise
Quality Assurance Manager/Coordinator	• Quality assurance/quality control experts
State Personnel	
State Environmental Departments	• State ARARs, procedures, concerns
State Natural Resources Trustees	• Environmental impact/management
Federal Agencies	
U.S. Army Corps of Engineers	• Design, construction, & management experience
U.S. Bureau of Reclamation	• Management and oversight experience
U.S. Department of Interior	• Management and oversight experience
U.S. Geological Survey	• Management and oversight experience
Occupational Safety and Health Administration	• Safety and health expertise
National Oceanic and Atmospheric Administration	• Media and weather expertise
EPA Contractors	
ARCS/RACs	• Engineering and scientific expertise; RD and construction management
Local Government Agencies	
Building inspectors	• Design review plan-checks for compliance with building codes
Community members (TAG representatives)	• Technical expertise

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the RPM with a resource management challenge. When creating the TRT, the RPM should delegate responsibilities up front to team members and clearly establish project and individual requirements for each team member.

3.5 Developing a Communications Strategy

Once a TRT is formed, the RPM must develop an effective communications strategy. The strategy should provide a framework for communication among a diverse team of individuals, usually working within different organizational boundaries, and facilitates efficient exchange of technical, financial, schedule, and procedural information. As a general rule, the more information a project manager passes along to TRT members, the more likely that they will generate good ideas for the project and communicate them to the project manager.

Since the RPM acts as the conduit for RD/RA project information, he or she should ensure that appropriate information is communicated to the appropriate people at the right time. The project management plan should document a strategy, in written or graphical form, that:

- Sets up communication procedures
- Outlines frequency of communication patterns
- Provides clear channels for communication
- Establishes controls to identify communication breakdowns

The RPM should strike a balance between the frequency of communication among the various parties and the appropriate level of communications. The opportunity for miscommunication and misunderstanding increases with the number of people involved and the complexity of the project. The following communications mechanisms should be included in the project management plan:

- Kickoff meeting involving all team players
- Formal meetings to review progress (e.g., design reviews)
- Conference calls
- Periodic status reports
- Informal meetings/interpersonal communication

An RPM can structure a communications strategy in many different ways. One suggested method involves preparing a communications matrix identifying key team members and how information (including submittals, memoranda, documents, and approvals) is distributed among the members. The RPM should use whichever matrix format(s) best serves his or her purposes. A generic example of a matrix format is illustrated in **Figure 3-3.**

The communications matrix should reflect the agreement of the entire team and be designed so that everyone clearly understands his or her role in the flow of communication before the RD commences. The roles in the communications matrix should provide open channels of communication without inundating team members with too much information, thereby discouraging a value-added review. An important aspect of effective communications is providing TRT members with advance notice regarding submittals for their review.

3.6 Collecting Predesign Information

During the planning process and before the RD begins, the RPM must be as thorough as possible in providing all relevant information (sampling reports, etc.) to the designer. Predesign information collection is an essential step in facilitating the smooth transition from the ROD to the RD and ensuring that the designer has a clear understanding of the technical objectives of the ROD. The RPM must be as thorough as possible in providing relevant information, but the designer is responsible for ensuring the completeness of the information provided. This collection of information, along with the project management plan, serves as the initial building block for the RPM to develop the RD statement of work (SOW) (see section 4.3).

Primary information sources for predesign information collection include the RI/FS, the ROD, and other available documents. In addition, much of the information for Federal-lead RDs may be obtained through a predesign discussion session, which should be held soon after the ROD is signed, involving the RPM, the RI/FS contractor, in-house

Figure 3-3

Example of a Communications Matrix

	RPM	PO	CO	State	ARCS/RAC Contractor	TRT
Invoice/ Monthly Reports						
Internal Memoranda						
RD Submittals (List)						
RA Submittals (List)						

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technical experts, and other Regional personnel experienced in RD/RA project work. Representatives from the designer, the TRT, the state, and other federal agencies also may attend.

A listing of collected information serves as a current inventory of information pertinent to the RD and should be attached as an appendix to the RD SOW so that both the RPM and designer may identify design information needs. **Figure 3-4** lists information to be collected.

OSWER Directive 9355.0-43, "Guidance for Scoping the Remedial Design," March 1995, provides more information on predesign information collection.

3.7 Analyzing Project Constraints

Although the RPM faces several project constraints that can jeopardize timely project completion, they can be minimized through effective planning. This section describes a list of issues an RPM generally encounters that can affect the project schedule and costs. By recognizing potential constraints, the RPM can develop the most effective RD/RA contracting strategy to avoid late changes to the budget and schedule.

Figure 3-4

Typical Collection of Predesign Information

- Initial site conditions (e.g., characteristics, availability of utilities, restrictions on road use)
- Availability of site access (any known restrictions or issues)
- Technology/design approach
- Performance standards, ARARs, permits
- Summary of all available technical information (listing of the source and description of the data)
- Volume of materials to be treated and the accuracy of the data
- Unresolved issues (including undecided or unknown performance standards)
- Health and safety concerns
- Operation and maintenance (O&M) issues
- Historical property boundary and ownership information

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3.7.1 General Constraints

The following major types of constraints should be considered for most RD/RA projects:

- Funding
- Schedule
- Health and safety
- Equipment
- Weather
- Change in RPM
- Community relations
- Permits
- Off-site disposal

Funding

All funding constraints must be identified so that the project may be scoped adequately. The RPM should know the availability of funds for the RD, RA, technical assistance, and O&M costs. The RPM also should be aware of the state cost share.

Incomplete RA funding for the project (only partial funding available) may result in the need to phase certain portions of the RA (see section 3.10.1). A phased RA would alter the design approach. Additionally, a state's inability to fund expensive RAs or O&M activities may affect design decisions (see section 3.11).

Schedule

The RPM, with help from the TRT, prepares a master project schedule containing major milestones throughout the RD/RA process. The RPM must identify any schedule commitments to factor them into the contracting decision-making process. The schedule must be updated as the project develops.

Health and Safety

The RPM should be aware of worker and public health and safety issues because they might affect project completion. For example, the use of levels A or B personal protective equipment (PPE) for workers may affect productivity and, subsequently, the budget and schedule. There also may be periods when construction is halted at a site to protect the public against safety threats such as a potential increase in air emissions.

Equipment

Although the RPM is not responsible for procuring equipment, he or she should know if the ROD specifies a process or remedy that requires special or proprietary (unique) equipment. Equipment that needs to be procured under a separate contract or has a delayed delivery schedule may affect the RD/RA schedule.

Weather

Geographic location and seasonal weather variances should be evaluated for the project site. Extreme temperatures, excessive rainfall, or high winds may delay RA execution; winter construction shutdowns are common in the northern United States. Weather patterns affect design decisions such as whether to use fast tracking. It may not make sense to fast-track an RD/RA only to be shut down during the winter.

Change in RPM

An RPM may not be the project manager for the entire process due to the length of time required for project completion. To minimize project disruption, records should be organized and current so that the replacement RPM can trace the history of the project and the rationale for earlier decisions.

Community Relations

The RA schedule should accommodate community concerns. Responding to the community takes much more of the RPM's time while a site is being remediated because of the increase in construction activity (e.g., the community may be affected by truck traffic or noise levels). The community may propose a desired hauling route, work hours, etc. These constraints must be identified to allow the designer an opportunity to address them.

Permits

Permitting requirements may delay an RD/RA if not addressed in a timely fashion. Section 121(e)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) exempts EPA from having to obtain permits (local, state, or federal) for any RA conducted entirely on site; however, the "substantive requirements" of such permits must still be met. This applies to *all* permits, including environmental and building permits. The formal permitting process must be completed for any

off-site activities, because off-site activities are *not* exempt from having to obtain permits.

The designer is responsible for applying for all off-site permits and identifying substantive requirements, but the RPM must ensure that permitting requirements for the project are met. As part of the basis of design report, the designer must submit a permits plan that lists the permits required and the strategy for complying with permit requirements, including how to address the substantive requirements for the on-site RA. In addition, the permits plan should include a schedule for obtaining all required permits before the RA begins. To prevent RA delays, this process must be started as early in the design effort as possible.

The expertise to evaluate the substantive requirements often resides with the appropriate permitting agency. The RPM must identify the agencies responsible for setting permit requirements so that agency personnel may provide assistance with interpreting the regulations and setting permit conditions. Arrangements should be made with the permitting authorities for assistance in reviewing submittals for compliance both for on-site work where permits are not required and for off-site work where permits are required.

The same approach should be used to work with local authorities to ensure that all national and local building codes are met. If necessary, an RPM may request assistance from local permitting authorities to review pertinent design specifications to ensure substantive requirements are met. Local authorities, however, may lack the health and safety training to be allowed access to certain areas of the site.

OSWER Directive 9355.7-03, "Permits and Permit Equivalency Processes for CERCLA On-Site Remedial Actions," February 1992, provides guidance on permits for CERCLA.

Off-Site Disposal

Section 121(d)(3) of CERCLA requires EPA to dispose of hazardous waste only at those facilities operating in compliance with the Solid Waste Disposal Act. The RPM plays a critical role in ensuring effective implementation of the off-site rule. The RPM must determine if the facility permit or interim status authorizes receipt of waste, pretreated as required, from the RA site.

The RPM is responsible for contacting the Regional Off-Site Contact (ROC) in the Region where the wastes will be shipped. The ROC reports on whether the facility can currently receive the waste. Often, determining whether a facility can accept waste is specific to particular units within a facility, rather than to the entire facility. Because of the dynamic nature of compliance conditions at these units or facilities, status should be verified before each waste shipment.

A facility that has received a notice of unacceptability (issued by the ROC) has a 60-day period during which it may continue to receive CERCLA wastes while it addresses the violation cited. The ROC and RPM should communicate throughout the 60-day period. On the 60th day after issuance of the unacceptability notice, the RPM must stop waste transfer to the facility if the facility has not corrected the problem.

Because the off-site disposal rule can result in lengthy RA schedule delays, the RPM should be prepared with an alternative disposal site or other contingency in place such as requiring the designer/RA constructor to designate backup facilities.

For example, the disposal contract between the constructor and the company chosen to manage the disposal of CERCLA waste off site should specify the primary and alternate facilities that will receive the waste for ultimate treatment, storage, or disposal. The RPM should coordinate with the ROC regarding the facility permit status of all facilities to receive waste before a disposal contract is signed. The contracting party should require the constructor to provide copies of written agreements between the facilities and the constructor to document facility availability.

OSWER Directive 9834.11 and .11a, "Revised Procedures for Planning and Implementing Off-Site Response Actions," September 1993, and OSWER Directive 9834.11FS, "Overview of the Off-Site Rule for OSCs and RPMs," September 1993, provide guidance for EPA's off-site disposal policy.

3.7.2 Property Access Issues

Property access is a potential constraint for both RDs and RAs and obtaining site access for both will involve much more effort than an RPM may anticipate. Early planning is crucial because failure to obtain access in a timely manner results in schedule delays and increased costs.

Access for RD Data Collection Activities

The RPM, with assistance from the Office of Regional Counsel (ORC), should determine if existing RI/FS access agreements, obtained using the authority provided by CERCLA, allow EPA access to the site. If new access agreements are needed, they must be obtained before the designer goes onto the property. Generally, property access is not problematic during the design effort because of existing property access agreements or because the designer does not need to access the property. On a few occasions where sampling must occur off-site (e.g., the ground water in off-site areas must be sampled) and RI/FS agreements do not cover the access, property access must be established. At this stage, the RPM also should begin to explore obtaining access to utility connections. The RPM should work with USACE or the EPA contractor to establish responsibilities for doing so.

Access for RA Implementation

During RD development, the designer should identify all property access necessary to implement the RA and submit the information to the RPM as a design submittal. The RPM, with assistance from ORC, develops an approach to obtain site access to the property. The process by which property is acquired depends upon the parties involved in remedy implementation and the state where the site is located.

There are two ways to obtain access to a property to implement the RA:

- Access agreements
- Property acquisition

Access Agreements

Section 104(e) of CERCLA provides EPA with the authority to obtain access to property that is contaminated or threatened with contamination for implementing response actions. Any existing access agreements from previous site activities must be re-examined to ensure that the agreements are valid during construction. Because of the intrusive nature of construction, the access agreement should describe the activities that will occur and the planned restoration of the property upon completion. This approach may not be effective for ground water actions where the extraction well networks extend across adjacent properties and there is a requirement for guaranteed long-term access. Access agreements are valid only for the current landowner whose signature is on the agreement and do not transfer to future property owners. Access agreements usually are not tied to the property deed.

Property Acquisition

Section 104(j) of CERCLA allows EPA to acquire by purchase, lease, donation, condemnation, or otherwise any property necessary (generally EPA will only acquire property that is not contaminated) to conduct an RA. However, EPA may acquire property under CERCLA 104(j) only if the state where the property is located assures EPA before the property is acquired, through a contract or cooperative agreement or otherwise, that the state will accept transfer of the interest after RA completion. Property acquisition (includes purchase, easements, leases, etc.) allows EPA to record its interest onto the property deed. Property acquisition differs from property access agreements, which are subject to future access issues should property ownership change. Acquisition ensures long-term access for off-site actions. CERCLA 104(j) also allows EPA to acquire property for off-site staging areas, creation of new wetlands for ARARs compliance, or permanently relocating residents.

In addition, other types of property issues may arise during the RA that should be considered during the RD:

- Temporary relocations during construction—Residents may need to be relocated during construction activities. USACE has a relocation staff to carry out this effort. ARCS/RAC contractors must *not* perform this function for EPA.
- Replacing damaged property—It may be necessary for EPA to excavate in residential areas such as yards, driveways, or sidewalks. EPA can offer replacements (e.g., replacing

fencing and restoring landscaping). The RPM should consult with ORC in these instances.

Site access issues must be resolved before advertising the RA contract. Failure to obtain access may result in contractor delay claims.

USACE develops a Real Estate Planning Report (REPR) for all RDs that it manages. The REPR describes the property needs for the project based on information from the designer and associated costs should EPA choose to acquire property or interests in property. The RPM should consider requesting a similar report from an EPA contractor for EPA-managed RDs. The strategy for obtaining the property through the access provisions of 104(e) or acquisition through 104(j), however, is developed by the RPM and ORC.

Regardless of the RD lead, if property acquisition is necessary, USACE must perform that function. USACE acquires property (including acquisition of temporary construction easements) on EPA's behalf because EPA lacks the appropriate staff to carry out an acquisition program. EPA contractors can be tasked to provide real estate support but *cannot* determine any purchase price, make any offers, or negotiate with property owners.

The RPM enters into an IAG with USACE (if one does not already exist) for real estate assistance. When acquiring property, USACE follows Public Law 91-646, the *Uniform Relocation and Real Property Assistance Act*, which governs the means by which citizens are compensated and the procedures the government must follow when purchasing property. Although the law concerns permanent property acquisition, the procedures are used by USACE for all property acquisitions.

OSWER Directive 9355.5-01/FS, "Real Estate Acquisition Procedures for USACE Projects," February 1990, outlines USACE's role in real estate acquisition under CERCLA.

3.7.3 Record of Decision Changes

The RPM must ensure that the RD is consistent with the ROD. After a ROD is signed, information may be received or generated during the RD/RA process that could affect how EPA believes the selected remedy should be implemented. These changes may include a change in the remedy scope or performance standards or an increase in costs or treatment quantities. In case of a deviation from the ROD, the designer should immediately notify the RPM. The RPM then makes a determination whether the design results in one of the three categories of ROD changes described below. **Figure 3-5** illustrates examples of each type of ROD change.

Figure 3-5

Examples of ROD Changes

Minor - Testing during RD shows that soil volume requiring treatment is 75,000 cubic yards, not the 60,000 estimated in the ROD. The remedy cost, however, will increase only by five percent because of economies of scale.

Significant - Residuals from a treatment operation were unexpectedly hazardous and must be disposed of in a Subtitle C landfill, rather than a Subtitle D landfill.

Fundamental - The in-situ soil washing remedy selected in the ROD proves to be infeasible to implement after testing during the RD. A decision is made to excavate and thermally treat the waste instead.

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Minor Changes

Minor changes have little or no effect on the overall scope, performance, or cost and should be recorded in a memorandum in the post-decision document file.

Significant Changes

Significant changes have a profound effect on the scope, performance, or cost of the remedy and are documented in an *Explanation of Significant Differences (ESD)* as required by CERCLA Section 117(c). Depending on the significance of the change, a public comment period may be warranted. While the ESD is developed, EPA may continue with the design or construction activities.

Fundamental Changes

Fundamental changes occur when fundamental new information results in a change of the selected remedy and must be documented by a ROD amendment. The amendment must be prepared in accordance with procedures outlined in the *National Contingency Plan (NCP)*, 40 *Code of Federal Regulations (CFR)* Section 300.435(c)(2). If a ROD

amendment is necessary, affected site activities should be stopped until an amendment is issued. Work unaffected by the change may continue.

Documenting both minor and significant ROD differences is an *NCP* requirement that must be performed in a timely manner. Preparing the documentation for ROD changes *cannot* wait until site deletion. No site will be eligible for the *NCP's Construction Completion* category with outstanding memoranda on minor changes or outstanding ESDs on significant changes.

Significant or fundamental ROD changes must be reflected in the SSC. The RPM must ensure that the state is aware of the ROD changes and that they are incorporated into the SSC.

OSWER Directive 9355.3-02/FS, "Guide to Addressing Pre-ROD and Post-ROD Changes," April 1991, outlines how to address and document ROD changes.

3.8 Scheduling the RD/RA

In the project management plan, the RPM, with the assistance of the TRT, develops a baseline schedule from start to completion of the RD and RA. The RPM creates an initial RD/RA schedule during the planning stage that builds upon the schedule information in the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS). An inexperienced RPM should communicate with experienced RPMs who have successfully managed an RD or RA to identify obstacles and factors that will affect the overall schedule (see section 3.7).

Project scheduling flows from the work breakdown structure (WBS), a standardized system for numbering each work element (see the statement of work [SOW] for a RAC). The schedule assigns dates, durations, and interconnections to the tasks and subtasks identified in the WBS. Start and end dates for each task and subtask in the WBS are based on the RPM's experience and knowledge of site conditions, on the advice of the TRT and more experienced RPMs, existing guidance for scheduling RDs and RAs, and the RPM's ability to balance priorities. Although some tasks are conducted concurrently, some depend on the successful completion of others. The interrelationships among tasks need to be identified and reflected in the scheduling technique used by the RPM.

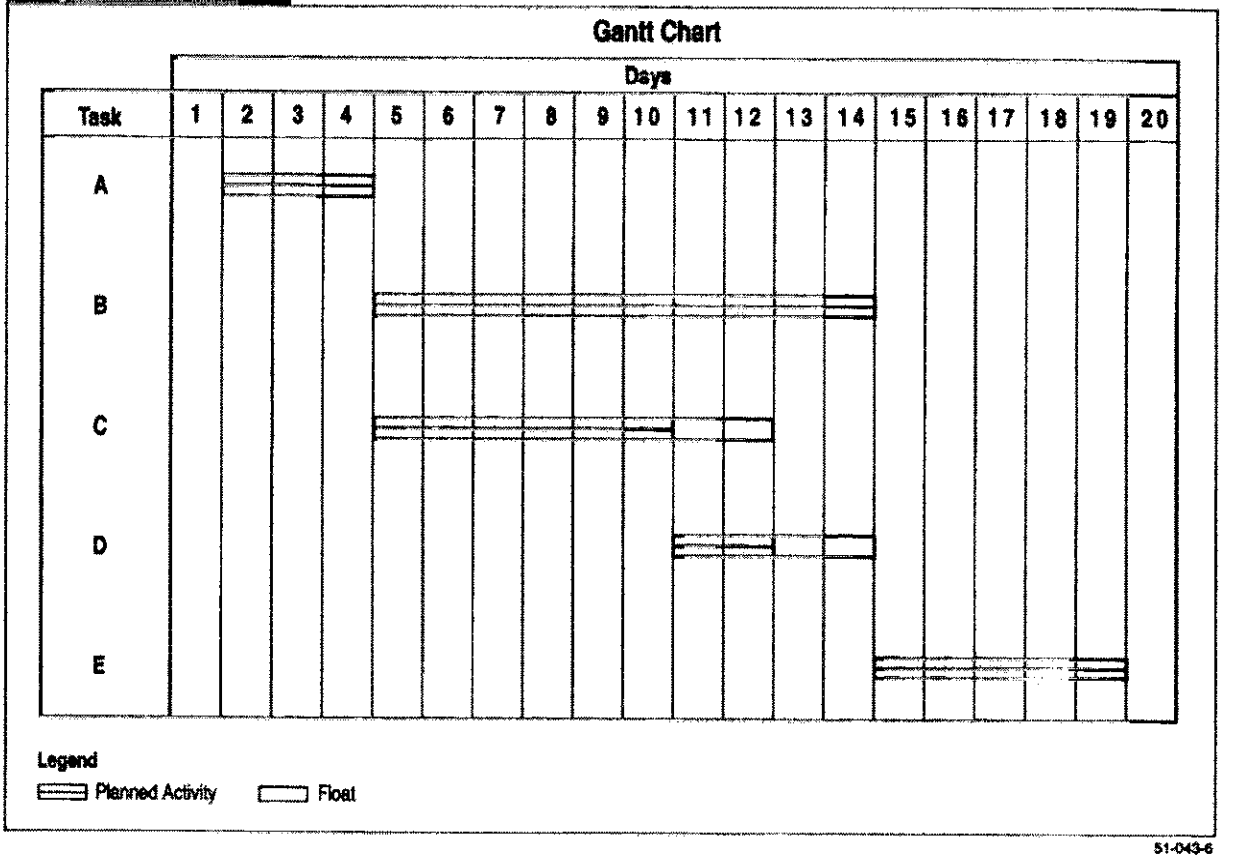
The RPM should evaluate the appropriateness of accelerating the schedule. For example, the RPM may want to consider acceleration options (e.g., phasing and fast-tracking) for RDs. Generally, more opportunities exist for schedule acceleration during the RD than the RA (see section 3.10.1).

The baseline project schedule is the basis for negotiations with the EPA contractor and is used to develop agreed-upon timeframes for USACE-managed projects. When the EPA contractor provides the RPM with a detailed RA or RA schedule (as part of the work plan submittals), it should be incorporated into the RPM's overall baseline project schedule. For USACE-managed projects, the schedule is maintained by USACE with a copy provided to the RPM. The approved project schedule must be established early in the RD or RA and must incorporate any scope changes as they occur to remain a valid benchmark for evaluating schedule performance. The RPM should review the schedule on a monthly or more frequent basis. Because the schedule is a tool for evaluating contractor or USACE performance, it may be changed only upon prior EPA approval. The RPM also should update schedule changes in CERCLIS and inform EPA management as necessary. Two scheduling techniques are suggested: the *Gantt chart method* and the *critical path method* (CPM). EPA predominately uses the former.

3.8.1 Gantt Chart Method

The Gantt chart is a bar chart presenting a list of tasks or activities required to meet an objective with estimates of time required to complete each task. Time is usually displayed as a horizontal bar with a dateline placed at the top. Tasks or activities are scaled to show expected durations—the length of each line represents the number of planned labor hours/days for a particular activity. For example, in **Figure 3-6**, Task A is scheduled for three days and a horizontal bar extends between day one and day four. Also, Tasks C and D are scheduled for six and two days, respectively, and each includes two floating days (note boxes spanning days 11 and 12 for Task C and days 13 and 14 for Task D). Depending on the RD/RA project, the time scale should be weekly or

Figure 3-6



monthly, covering as many years as is necessary for project completion. The Gantt chart is easy to read, the time scale is readily comprehensible, and it clearly identifies where resources are required. Its main disadvantage is that schedule logic (i.e., tasks critical to timely completion) is not always evident.

3.8.2 Critical Path Method

Crucial project elements are called critical tasks and are determined by a process called the critical path method (CPM.) The critical path is determined by considering each activity's duration, sequence, and constraints and may be identified by making the bars solid. For example, in **Figure 3-7**, Tasks A, B, and E are critical tasks; therefore, they are represented by solid horizontal bars. Noncritical tasks are displayed differently.

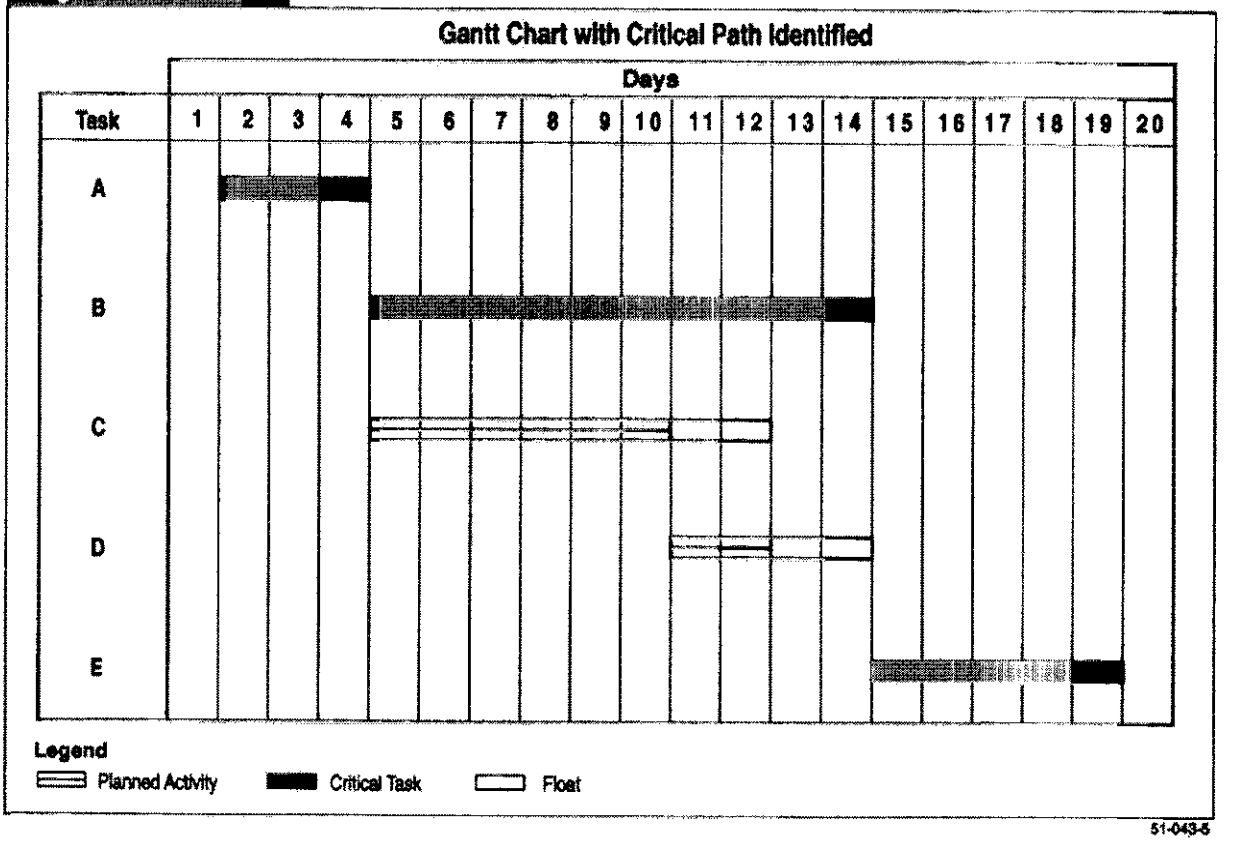
CPM uses precedence diagrams for a graphic display of tasks and subtasks. CPM should be used to determine the project length and to identify activities critical to project completion. The critical path of a project is the series of interdependent activities of a project that must occur in a specific sequence. The CPM illustrates schedule logic. Disadvantages of using the CPM are that the time scale is difficult to understand, since time is usually denoted above or below each task, and it is difficult to assess resource use, because resources are not depicted on the diagram.

3.9 Developing the RD/RA Budget

The RPM is responsible for controlling RD/RA cost when Superfund monies are used for cleanup activities. The RPM controls RD/RA costs by establishing a preliminary budget and periodically updating it. After the ROD is signed, the RD/RA budget and schedule developed during the RI/FS should be reviewed for accuracy and corrected, if necessary. The RPM consults with the IGCE coordinator, the information management coordinator, or other experienced staff within the Region to ensure consistency with available historical cost and schedule data.

The RPM incorporates budget information into CERCLIS to ensure funding availability upon

Figure 3-7



commencement of the design process and to facilitate other planning and project management activities. The estimated costs and dates serve as benchmarks; however, they should be refined and updated in CERCLIS periodically as they become more detailed and accurate. Failure to update CERCLIS hinders efforts to fund and schedule the project properly, potentially resulting in work stoppages, scheduling delays, cost overruns, and a general reduction in project quality.

3.10 Developing a Contracting Strategy for the RD and RA

When planning the RD/RA project, the RPM should develop a contracting strategy. The contracting strategy for RD/RA execution includes several interrelated decisions including choices for the following:

- Accelerated or traditional scheduling
- Design approach
- Designer
- RA contract types
- RA procurement strategy

Each decision affects other parts of the strategy. For example, an accelerated approach to start or complete a project more quickly affects all other contracting strategy decisions, which subsequently affect remediation costs. Project constraints (see section 3.7) also affect the contracting strategy. Examples of this include:

- Schedule requirements—Starting or completing a project quickly could require an accelerated strategy, which would affect all other contracting strategy decisions, including choice of designer, type of RA contract, RA procurement strategy, and cost.
- Project complexity and size—Project complexities range from simple earthwork projects to more complex projects to innovative technologies. Technical complexity also affects the type of design approach needed.

- Level of confidence—The degree of confidence in the site characterization data primarily will affect the contract type (e.g., a fixed-price contract may be inappropriate for a site where contaminant concentration or distribution is not well defined).

The following four sections of the chapter describe the major elements to consider when developing an RD/RA contracting strategy.

3.10.1 Schedule Acceleration

EPA is committed to expediting cleanups at Superfund sites. Therefore, the RPM must evaluate every project for opportunities to accelerate the schedule. Methods of developing an optimum schedule for an accelerated RA include phasing, fast-tracking, and using preplaced or prequalified contracts. The RPM should be aware, however, that ill-considered shortcuts or schedule acceleration during the RD process may result in problems during RA construction that require more financial resources to address at that stage of the RD/RA process.

Phasing

Phasing is the division of a project into smaller work elements that can be implemented on different schedules, thereby accelerating the RD and RA. It allows certain project elements to be started ahead of others to reduce the hazards present at the site or to complete simple prerequisite work elements ahead of more complex and hazardous ones. All elements may be in progress simultaneously, but each one has its own schedule and rate of progress. Phasing is advantageous because the initial RA start date can be accelerated. The following criteria can be used for grouping RD/RA activities into discrete work elements:

- Existing information
- Type of waste
- Funding availability

Existing Information

When sufficient information is available to design some RA components, these elements may be phased. Typically, these activities include road or fence construction, utilities installation, building demolition, tank removal, and site preparation. These activities can be completed and RA contracts procured while data on other aspects of the design are gathered.

Type Of Waste

Segregation of nonhazardous and hazardous work elements can be a simple criterion for project phasing. The engineering required for the nonhazardous components of a project is frequently more conventional and may lend itself readily to an accelerated schedule. Activities generally suitable for this approach include constructing roads and fences and installing utilities. Whenever possible, construction activities should be designated as nonhazardous to allow for more open competition, thereby resulting in lower government costs (29 *CFR* 1910.120 may not apply).

Funding Availability

As stated in section 3.7, funding constraints may create the need to phase an RA. For example, an incinerator project could be phased by mobilizing and constructing the incinerator as phase one and operating the incinerator as phase two.

Fast-Tracking

Fast-tracking is a procedure that is complementary to phasing. Whereas phasing is the process by which large complex projects are partitioned into smaller, more manageable work elements, fast-tracking accelerates the implementation of individual work elements. Fast-tracking techniques manipulate the internal steps required to complete each phased element, thereby optimizing the overall schedule. There are several ways in which the RD/RA process can be fast-tracked:

- Expediting the RD
- Optimizing the RD
- Fast-tracking the RA

Expediting the RD

In this method, steps in the RD process are eliminated or shortened. However, short-cutting involves the assumption of risks. The level of detail in an RD can be reduced, particularly for simple engineering efforts, such as soil excavation or tank dismantling. Several Regions also are developing standardized design specifications that can be used to shorten the design time. The designer would begin

with the standard specifications and modify them for the specific site. USACE, with funding assistance from EPA, developed a series of standard design specifications for certain types of remediation activities that are available to any designer involved in federal remediation (see section 4.3.1 and Figure 4-3 or USACE's Huntsville Construction Division should be contacted for additional information).

Optimizing the RD

Optimization is the rearrangement of the sequence in which RD elements are performed to enhance the overall schedule. Examples include:

- Completing the site preparation portion of a design (and other simple construction activities) and initiating construction while the rest of the design effort continues
- Scheduling all design reviews in parallel with ongoing design work so they are not on the critical path

Fast-Tracking the RA

Some projects can be divided into separate stages for construction by awarding contracts for each stage of construction work as soon as the design is completed (e.g., site preparation, procurement of long-lead equipment, utilities installation).

OSWER Directive 9355.5-2, "Guidance on Expediting RD and RA," contains additional information on phasing and fast-tracking.

Use of Preplaced or Prequalified Contracts

The use of preplaced or prequalified contracts is another means of expediting construction initiation. These contracting methods require approximately 30 to 60 days to initiate construction activities by eliminating the solicitation and audit requirements of site-specific contracts. Additionally, lengthy delays due to bid protests or bonding difficulties are eliminated. These contracts reduce competition, however, and may increase the cost of the project. Furthermore, because preplaced contracts are cost-reimbursement contracts, they require more extensive government oversight than fixed-price contracts. USACE has developed methods to expedite RA initiation through the implementation of the following two innovative contracting strategies:

- Preplaced RA and Rapid Response Contracts
- Total Environmental Response Contracts (TERCs)

There are restrictions on these types of contracts, but they may provide an excellent means to accelerate the RA. The RPM is encouraged to consult with the appropriate USACE contact to discuss the possibility of using them.

OSWER Directive 9355.5-05/FS, "Procedure for Use of USACE Preplaced Contracts to Expedite Superfund Cleanups," April 1994, contains more information on preplaced and rapid response contracts.

3.10.2 RD/RA Design Approach

The design approach for an RD/RA is an important part of the contracting strategy. Specifications, a generic term that includes drawings, are developed by the remedial designer and included in the RD package. Specifications contain a description of the technical requirements the constructor must meet to implement the RA and the criteria for determining whether these requirements are met. Two types of design specifications typically used in Superfund are detailed design and performance-based specifications. The type of specification package, developed in response to specific site characteristics and the selected remedy, influences both the design and the RA procurement schedule. Although the RPM cannot mandate which type of design specifications the remedial designer should develop, if the RPM can accurately describe EPA's requirements for the site in the RD SOW, the designer should choose design specifications to meet EPA's requirements. Therefore, the RPM should know the different types of design specifications and their effect on the RA procurement strategy when planning how to manage the RD/RA.

Detailed Design Specifications

Detailed design specifications and drawings are used in solicitations when the government's technical requirements are definite and can be clearly communicated to bidders (e.g., an entire treatment plant designed down to the bolt level). Under this type of specification, the contracting party (in some cases, EPA) or the designer may be responsible for design and related omissions, errors, and deficiencies

in the specifications and drawings. If the constructor follows the design and the remedy fails, the constructor may not be liable. The government must assume the cost of correcting the problem (and pursue designer liability, if any, separately). RAs lending themselves to detailed design specifications include landfill covers and traditional ground water treatment systems.

Detailed design specifications permit RA contract award solely on price and may result in a lower cost to the government (see section 5.4 for additional information). Competition for contract award is also expanded because construction firms without design capabilities may bid on projects. Although detailed designs save time during the RA procurement phase of a project (by alleviating the need for a technical proposal review), some time is usually lost during the intensive design effort. The RPM, in consultation with the TRT, should decide whether the overall schedule and budget can be reduced using this approach.

Performance-Based Specifications

Performance-based specifications in the RD package advise the constructor what the final product must achieve and explicitly describe how performance will be measured. The RA constructor proposes the method to achieve the requirements established in the specifications. If the RA constructor has undertaken an impossible task, meets technological problems, or cannot complete performance due to a lack of experience, the constructor assumes the risk of financial loss. This potential risk of financial loss, however, translates into a higher project cost for the government (in the form of higher bids). Performance-based specifications are suitable for more complex treatment technologies and are commercially available through a number of vendors. A performance-based specification package is generally more easily prepared and can result in a shortened RD schedule. Time savings, however, are offset by the additional procurement time needed to conduct technical evaluations of the submitted proposals, since each bidder may propose different means to achieve the prescribed requirements.

3.10.3 RA Contracts

The enormous scale and complexity of procurement has necessitated the development of a wide variety of contract types. The appropriate contract to implement the RA is a project-specific determination made by the party contracting for the RA. USACE and the ARCS/RAC contractor, respectively, will decide the RA contract type for USACE-managed and EPA contractor-managed RAs. Although the RPM does not choose the contract type for the RA procurement, he or she must be aware of the different contract types.

RA Contract Type

The three types of contracts generally used for RAs are fixed-price, cost-reimbursement, and time and materials contracts.

Fixed-Price Contracts

Fixed-price contracts provide a firm price for the RA at contract award. The contract amount is adjusted only when work must be added to or deleted from the contract, such as upon the occurrence of an unanticipated event or contingency. Most Superfund RAs, in which the work is well-defined, are awarded as fixed-price contracts.

Cost-Reimbursement Contracts

Cost-reimbursement contracts provide for payment to the contractor of all allocable, eligible, and reasonable costs expended by the contractor in contract performance. In addition to the costs, most cost-reimbursement contracts provide for the payment of a fee (profit) to the contractor. Cost-reimbursement contracts contain an estimate of total cost and a cost ceiling so funds may be obligated. These contracts should be used only when the performance cost cannot be estimated at the time of contract award with the accuracy necessary for a fixed-price contract. Because cost-reimbursement contracts require the government to pay for all costs incurred by the RA constructor, the government assumes a financial risk. To minimize the government's potential financial risk, more intensive contract management is required by EPA.

Time and Materials Contracts

A time and materials contract provides for the acquisition of supplies, services, equipment, and construction on the basis of direct labor hours at specified hourly rates and materials at cost. These contracts are used only where it is not possible (at

the time of contract placement) to estimate accurately the scope (extent or duration) of work required. The contract provides for direct labor hours at an hourly rate and the provision of materials at a designated cost. Time and materials contracts require the use of time and cost standards applicable to the particular work item.

RA Contract Requirements

After the RA contract type is established, bonding and wage rate requirements must be met by the constructor. Bonding and wage rates are the responsibility of the RA contracting party, but the CO works with the contracting party to ensure all requirements are met. The RPM, however, should be aware of the status of such requirements.

Construction and Service Contract Wage Rates

The contracting party soliciting the RA contract must differentiate between construction and service portions of the contract. Whether an RA or portions of it are determined to be *construction* (alteration or repair, including dredging, excavating, and painting) or *service* (operating a treatment unit, refuse removal, etc.) will determine the labor wage rates and the bonds necessary for the project. The plans and specifications should differentiate between the two types of activities so that appropriate labor wage rates (Davis-Bacon Act rates for construction and Service Contract Act rates for service) can be used.

For construction work funded in whole or in part under Section 104(g)(1) of CERCLA, the law requires that all laborers and mechanics employed by contractors be paid wages at rates not less than those prevailing on projects of a similar character within the same locality as determined by the Secretary of Labor in accordance with the Davis-Bacon Act. Service Contract Act wage rates must be applied when appropriate for government contractors providing services.

OERR, "Davis-Bacon Act/Service Contract Act and Related Bonding," contains more information on wage rates and bonding requirements.

Bonding Requirements for RA Contracts

Historically, bonding companies have been reluctant to issue bonds where the construction cleanup costs are high. By separating the project into two portions, construction and service, the overall construction costs are lower, thereby increasing the opportunities for contractors to obtain bonds. Performance and payment bonds are required on all federal construction jobs over $25,000. **Figure 3-8** describes construction bond requirements. When RA costs increase, bonds may need to be re-evaluated and additional bonds obtained by the constructor.

Figure 3-8

Construction Bond Requirements

The Miller Act (40 U.S.C. 270a-270f) requires performance and payment bonds for any construction contract exceeding $25,000. A *payment bond* is required should the RA contractor fail to pay its subcontractors. The amount of the payment bond shall equal:

1. 50 percent of the contract price if the contract price is not more than $1 million;
2. 40 percent of the contract price if the contract price is more than $1 million but less than $5 million; or
3. $2½ million if the contract price is more than $5 million.

A *performance bond* guarantees that the cost of the construction can be recovered should the RA contractor default on its obligation. Performance bonds generally cover 100 percent of the contract price and can be increased if the cost of the RA changes. The performance bond requirement may be waived or reduced by the CO, provided the government's financial interest is adequately protected.

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3.10.4 RA Procurement Strategies

The selected procurement method should correlate to the type of work being performed and will depend on the type of design specifications developed. Since EPA usually does not directly procure the RA, the RPM probably will not choose the RA procurement method. The RPM should, however, be familiar with the different types of procurement methods. In general, there are four basic forms of procurement within federal construction contracting:

- Sealed bidding
- Negotiated procurement
- Two-step sealed bidding
- Non-competitive (sole-source) procurement

For detailed information on these types of RA procurement, see section 5.4.

3.11 Coordinating with the State

The state is an integral part of the Superfund program and as such must be afforded the opportunity to participate in a meaningful way in RD/RA implementation. As a first step in defining state involvement for a site, the RPM should determine whether a State Memorandum of Agreement (SMOA) exists between EPA and the state (40 *CFR* 300.500). The SMOA usually establishes the general roles and responsibilities of EPA and the state during Federal-lead and state-lead response actions. Having a SMOA will save time in negotiating site-specific agreements (i.e., Superfund state contracts and cooperative agreements) and other Superfund-related issues with the state. For states that have not signed a SMOA with EPA, the RPM has a greater role in establishing the terms of the EPA-state relationship.

Secondly, the RPM and his or her state counterpart should meet before the RD starts to discuss fully the roles and responsibilities of both parties. During this initial meeting, the RPM should question the state about potential state concerns related to its CERCLA obligations. State constraints on funding or property transfer may have a significant effect on the implementation of the project and must be identified prior to issuing a design assignment. This meeting serves as a kick-off to an ongoing exchange that must continue to take place between EPA and the state.

Once EPA and state roles are defined by a SMOA or discussions, the RPM should develop a site-specific agreement outlining state and EPA responsibilities for that site. Superfund state contracts (SSCs) or cooperative agreements (CAs) specify EPA and state roles for RDs and RAs. In a Federal-lead, Fund-financed response, EPA is the lead agency and the state is the support agency (40 *CFR* 300.500). When EPA is the lead agency, an SSC is created between EPA and the state (see section 3.11.2); when the state is the lead agency, a state enters into a CA with EPA. SSCs also allow the transfer of necessary resources that the state may request as part of its support agency function.

3.11.1 State Support Role in Federal-Lead RD/RAs

For a Federal-lead response, the RPM should encourage the state to be an actively involved member of EPA's project team. Under Section 104 of CERCLA, the state is required to:

- Provide a 10 percent cost share of the remedial response (could be 50 percent or more for state-operated facilities)
- Conduct and fund all O&M activities
- Accept transfer of all property acquired by EPA to conduct the RA

In addition to the statutory requirements, Sections 300.515(g) and (h) of the *NCP* require that the following be done for RDs and RAs:

- The extent and nature of state involvement during the RD and RA be specified in site specific SCCs or CAs
- A joint inspection be conducted at the conclusion of RA construction
- The lead agency allow the support agency the opportunity to review documents (i.e., for Federal-lead RDs, the state is allowed a minimum of ten working days and a maximum of 15 working days to review RDs)

Without the state's assurance of its willingness to fulfill these requirements, the RA cannot be implemented. An experienced RPM understands that gaining the state's support takes much more than meeting minimum requirements. Therefore, early and full participation by the state is crucial to project success.

3.11.2 Developing the Superfund State Contract

The SSC is a joint, legally binding site-specific agreement between EPA and a state to obtain the necessary state assurances before an RA can begin at a site. The process of developing an SSC may take a year or longer. Creating a draft SSC early in the RD and meeting with the state on a regular basis as discussed above to resolve common issues should prevent the SSC from delaying the RA implementation. Surprising the state with higher projected RA costs or labor intensive O&M requirements near the end of the RD is poor project management. This may cause the state to object to

meeting unanticipated obligations, which may result in project disruption. Taking a proactive approach by regularly meeting with the state and creating an environment where the state is a valuable team participant should prevent incidents like this from occurring.

In addition to addressing the state's required CERCLA obligations, the RPM should also work with the state to ensure the following issues are dealt with in the SSC:

- Providing a complete RA cost estimate with an appropriate contingency amount to minimize state reluctance to increase its cost-share during the RA. RA construction change orders may result in costs exceeding the SSC amount. To minimize state disagreement over financial terms as the project progresses, careful analysis of the RA cost estimate and the associated contingency must be performed and included with the SSC.
- Defining if and to what extent the state will be involved in RA construction management (change order and claims review, value engineering proposals, and USACE construction contractor selection technical evaluation panels).
- Determining at what point the remedy can be declared "operational and functional" (see section 5.7.1). Once the remedy is determined to be operational and functional, the state is required to assume O&M activities (40 *CFR* 300.510). The SSC should clearly list the tests, performance requirements, or other functional requirements to be used to make this determination.
- Identifying O&M requirements and projected costs. In this section, the RPM and the state should address facility transfer, operator training, site access for O&M activities, and the O&M manual contents.

OSWER Directive 9355.0-57FS, "Cost-Risk Analysis for Remedial Actions," (DRAFT) 1995, provides guidance on estimating contingency amounts for RAs.

3.12 Maximizing Community Relations

Community relations is a useful and vital aspect of the RD/RA process. Community relations activities serve to keep communities informed of the activities at the site and help EPA anticipate and respond to community concerns. EPA, as the lead agency in a Federal-lead RD/RA, must do the following, according to 40 *CFR* Section 300.435:

- Review the community relations plan and update it as necessary
- Issue a fact sheet and hold a public meeting at RD completion, as appropriate (public meetings can also be held throughout the RD/RA process, if appropriate)

A community relations plan is developed for a site when the RI/FS commences. The community relations plan should be reviewed and updated to reflect the anticipated community relations activities that will occur during the RD/RA. Many RPMs may recall difficulties in implementing the RA because of the lack of initial coordination with the community over construction concerns. The key to effective community relations is taking a proactive role. The RPM must seriously discuss the effect of the construction and ways to mitigate its effect on the community. The RPM should not wait until the final design to initiate a discussion of the effects of the proposed RA with the community because it often will be too late to accommodate community concerns by making modifications.

The RPM may be assisted by USACE (if it has the RD and/or RA lead) or an EPA contractor in revising the community relations plan. The Regional Community Relations Coordinator may also be consulted. However, the RPM must retain the primary responsibility for plan implementation.

For ARCS/RAC contracts, all anticipated community relations support should be described in detail in the RD and RA SOWs. EPA contractors may only serve in a supporting capacity; they may *not* represent EPA during meetings with the community.

During the RD, the RPM should meet with local citizens groups early and often to discuss the effect

of the RA on their community. These effects may include:

- Air emissions—The potential for fugitive emissions, types of monitoring, plan for suppression, warning systems for the community (i.e., to address concerns about playgrounds, school areas, etc.), and evacuation procedures are very real community concerns. Some RPMs have arranged to have air monitoring data read out to a local point within the community, installed video cameras to record site activities for local cable access channels, and worked with the community to develop a warning system to notify the community of an emergency situation.
- Traffic—The RA generally will involve a substantial increase in vehicular (particularly truck) traffic around the site. The designer will suggest truck hauling routes (based on road weight restrictions, ease of transport, etc.) but citizens who know the area may have their own suggestions. The RPM should consider the alternatives, which may include rerouting or restricting the time of day that trucks may operate.
- Noise levels—The RA may result in an increase in noise levels in the surrounding community. The designer is responsible for evaluating the local restrictions on noise levels and ensuring that the design incorporates these standards. Even if the design complies with the local noise standards, the RPM may need to consider additional sound suppression systems to accommodate the community.
- Relocation—The RA may result in temporary or permanent relocation of community structures or residents, which the RPM should address.
- Economic effects—Citizens will question the economic effect that the RA will have on the community. As a show of good faith, the RPM may request that the contract be structured in such a way as to allow more local business participation. The contract can be phased (e.g., site preparation work, site security) and separated into nonhazardous and hazardous components that would allow smaller local firms to compete.

Overall, the RPM must remember that the community can also serve as an ally during the RD/RA effort. For example, community members may notice suspicious activities and report them to EPA, thus reducing Superfund site vandalism. By establishing a rapport with the community, the RPM will find that the community should be more responsive which in turn will make everyone's job easier.

The RPM should also discuss all of the above issues with local citizens groups before and during the RA. Section 5.3.2 provides more information on community relations efforts during the remedial construction project phase.

OSWER Directive 9230.0-04, "Community Relations Guidance for Evaluating Citizen Concerns at Superfund Sites," and EPA/540/G-88/002, "Community Relations in Superfund—A Handbook (Interim Guidance)," contain additional information on community relations.
